The Development of a Demonstration Water Conservation Project for Athletic and Recreation Fields for Public Agencies

A Grant Application
Water Use Efficiency Program
Department of Water Resources

February 15, 2001

A. Cover Sheet *(Attach to front of proposal.)*

1. Specify: ❒ agricultural project or ☒ urban project ❒ individual application or ☒ joint application

2. Proposal title--concise but descriptive: The Development of a Demonstration Water Conservation Project for Athletic and Recreation Fields for Public Agencies

3. Principal applicant--organization or affiliation: Cabrillo Community College District/Soquel Creek Water District

4. Contact--name, title: Dr. Michael L. Maas, Manager, Facilities Development, Cabrillo Community College District

5. Mailing address: 6500 Soquel Drive, Aptos, California 95003

6. Telephone: (831) 479-6322

7. Fax: (831) 477-5640

8. E-mail: mimaas@cabrillo.cc.ca.us

9. Funds requested--dollar amount: $5,016,573

10. Applicant cost share funds pledged—dollars: $996,706

11. Duration—(month/year to month/year): May, 2001 o December, 2001

12. State Assembly and Senate districts and Congressional district(s) where the project is to be conducted: Assembly District 28 Senate District 17 Congressional District 16

13. Location and geographic boundaries of the project: The project is located on the Cabrillo College Campus in Aptos, California 95003.

14. Name and signature of official representing applicant. By signing below, the applicant declares the following:
    -- the truthfulness of all representations in the proposal;
    -- the individual signing the form is authorized to submit the application on behalf of the applicant;
    -- the applicant will comply with contract terms and conditions identified in Section 11 of this PSP.

Michael L. Maas *(printed name of applicant)*

February 14, 2001 *(date)*

(signature of applicant)

B. Scope of Work

1. Abstract (Executive Summary)

Cabrillo Community College District and Soquel Creek Water District of Santa Cruz County are jointing submitting this grant proposal to develop a demonstration water conservation project for athletic and recreation fields for public agencies.

As background, the college district was formed in the early 1960's to serve the residents of Santa Cruz County. The water district serves a portion of the county which includes the college campus. When the college was initially developed, it established its own water system. Both the college well and the water district's wells draw from the same underground aquifer. Over the past two years, the two agencies have had numerous discussions regarding over-drafting of the aquifer and the need to conserve water in this region of the county. Presently, nearly 50% of the water used by the college is for irrigation. Monitoring of current water use indicates that between 20,000 and 24,000 gallons of water a day will be conserved from the months of May to October with the implementation of this project. Due to rainfall, the daily use will be reduced to 5-10,000 gallons per day during the winter and early spring. This water conservation plan is the primary objective of this grant. However, at the same time, the project establishes a demonstration athletic and recreation field project that can be implemented by any public or private agency.

The project proposes to replace the current natural turf athletic and recreational fields at the college with a new artificial turf marketed as "Fieldturf". This artificial turf has recently gain national acclaim for installations highlighted by ESPN and the National Football League. The proposed plan is to develop a women/s softball field, men's baseball field, soccer field and a multi-use field on the area of the campus designated for athletics and recreation. This demonstration project could then be viewed by other agencies in the state as a model facility developed by a water district and an educational institution. Further, this facility will be used as a base for water conservation training programs established by the college and the water district.

The estimated cost for the total project is $6,013,279 of which the college is contributing $996,706.. The grant application is for $5,016, 573.

2. Statement of Critical Issues

Santa Cruz County and specifically that region of the county served by the Purisima Aquifer, has a significant shortage of water. Over-drafting of the aquifer is a concern as well as salt water intrusion. These are the same issues being addressed by all water agencies in the greater Monterey Bay area. Numerous public hearings have been held on what the options might be available to solve the water shortage problem. This project can serve as

a prototype that would allow other agencies to implement similar plans throughout the county and the state. It is a proactive approach to water conservation rather than a reactive approach. It is a project that other agencies and community members can identify with and implement.

This project, because of the potential of enormous water conservation, is a premiere project. It is hard to conceive of a project that will have such an immediate and measurable impact on the aquifer. It is also a very high profile project because of the very positive image the college has in the community and the fact that the water district and the college are joint proposers for the project.

3. Objectives to be met by the project

This project is consistent with Objective 5-large landscape conservation programs and incentives as listed in Attachment A of the grant solicitation package. Specific objectives to be achieved by the project are as follows:

   a. To conserve approximately 5,400,000 gallons of water per year from the Purisima Aquifer.
   b. To develop a demonstration athletic and recreation field complex that shall serve as an example of water conservation practices.
   c. To implement a college-based training program to allow professionals and lay people to acquire the skills and technology to implement and manage similar projects and to secure employment in the field of water resource management.
   d. To serve as an example of how a water district and an institution of higher education can cooperatively develop a project that provides benefits to the college and residents of the community and at the same time reduces the use of water in the county and specifically this aquifer.
   e. To serve as an example of how two agencies have developed a plan to conserve water to and reduce over-drafting in the Purisima Aquifer.

4. Methods, procedures and facilities

This project proposes to replace the existing nature turf fields with an artificial turf product known as "Fieldturf". The product is a new artificial turf that is installed on a site that has been prepared with volcanic rock, drain lines and small rubber pellets. It is an installation process that has been field tested for nearly 10 years. Cleaning of the surface is done done sweeping. No water is used in the process.

The college has recently installed a dual watering system that provides for separate delivery and monitoring of irrigation and domestic water. Thus, monitoring of the reduction is water use will be straightforward.

The training programs and community education activities will be offered by the college as part of its instructional program. Monitoring and assessment of the enrollment and course content will be in accordance with current academic practices of the college.

Monitoring of the Purisima Aquifer is an on-going activity of the water district. The conservation measures proposed by the project can be validated by the water district measurements of the aquifer.

Finally, public seminars and community information days will be offered by the college in cooperation with the water district. Other agencies will be invited to participate. Results of attendance and interest in the project will be quantified.

5. Schedule

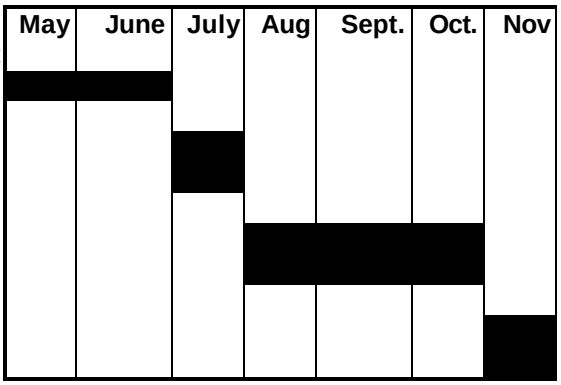
This is a very short-term project. The overall time line is seven months from planning to completion. A bar chart illustrating this time line is listed below. In summary, the projected costs and monthly (quarterly) expenditure projection is as follows:

	Activity	**Dates**	**Projected Budget**
a.	Planning/design	5/1-6/30	$85,450
b.	Preparation of the Site Infrastructure	7/1-7/31	$2,057,722
c.	Installation of artificial Turf and Equipment	8/1-10/31	$2,850,401
d.	Final site preparation and inspections	11/1-11/30	$23,000
	TOTAL		**$5,016,573**

Cabrillo College

Demonstration Fields Project

Activity	**Dates**	**Projected Budget**
Planning/Design	5/1-6/30	$85,450.00
Preparation of the Site Infrastructure	7/1-7/31	$2,057,722.00
Installation of Artificial Turf and Equipment	8/1-10/31	$2,850,401.00
Final Site Preparation and Inspections	11/1-30	$23,000.00



6. Monitoring and Assessment
   As stated in Section 4, this is a very quantifiable project. Water usage at the college will be measured via a meter on a daily basis. Records regarding water consumption have been maintained for 10 years. Results will be compared against these records. The water district will monitor the aquifer. Historical records are available for comparison. Information session, training sessions and classes will be noted in college publications with follow-up enrollment information available through the college. Date, time and participation of special receptions or seminars for other public agencies will be maintained and available for review.

C. Outreach, Community Involvement and Information Transfer

1. Describe Outreach Efforts to Disadvantaged Communities
   This project is located on the Cabrillo College campus in Aptos, California. The community college district serves all of Santa Cruz County including areas such as Watsonville, Live Oak, and unincorporated areas of the county that has a significant minority population (60% + Hispanic). These facilities will be available to all residents of the county and especially to youth groups, adult recreation groups and local elementary, junior high and high school groups. The college has a history, through its community service program, of making all its facilities available for community use when it is not needed for college instructional purposes. This will be the case with the proposed athletic and recreational fields. Outreach efforts will continue with the youth sport groups to ensure their use of the fields. The all weather conditions of the fields will make the facilities highly attractive to community groups.

2. Training, employment, and capacity building
   One of the objectives of this program is to provide training and study in water conservation and the management of artificial turf. It is anticipated approximately 30 students per semester will enroll in the instructional program. Further, at least 6 seminars will be held annual to training professional currently working in the field of athletics, parks and recreation. In terms of employment, traditional statistics would indicate that students in the program would be employed within two years. Given that scenario, approximately 15-20 new employment opportunities will be created each year.

3. Describe the plan for disseminating information on the results of the project
   The college water district, through its publications will highlight this project as a community project. Special information and training seminars will be scheduled at the site. The college catalog and schedule of classes will advertise the water conservation/turf management programs. Youth teams and community activity groups will be encouraged to use the facilities through the community service program of the college. The manufacturer and installer of “Field Turf” has committed to advertise this site as a

demonstration site in company literature and help promote the concept with other public agencies.

4. Notice to local land use entity, water district or other agencies
   The Soquel Creek Water District and Cabrillo Community College District are jointly proposing this project. The college district, as a state agency is responsible for the land use on the campus. The water district is obviously fully aware and supportive of the project.

D. Qualifications of the Applicants, Cooperators and Establishment of Partnership

1. Resume of the project manager:
   Cabrillo Community College District has established a Facilities Development Office that oversees all capital construction projects for the District. This is a contracted service with the Maas Companies. Dr. Michael L. Maas, principal of the company will be the project manager for this project. Dr. Maas' resume is as follows:

Michael L. Maas, President

Education

Ph.D.	Management/Administration	University of Southern California
M.A.	Physical Chemistry	Bowling Green State University
B.S.	Chemistry, Physics, Math	St. Cloud State University
Cert.	Business Management	Harvard University
Cert.	Computer Science	University of Minnesota

Employment

1998-	President, Maas Companies
1991-	President, Maas, Rao, Taylor and Associates
1988-	President, Michael L. Maas and Associates
1986-89	Vice-President, College Planning and Development Riverside Community College District
1984-86	Vice-President, Academic Services Riverside Community College District
1980-84	Vice-President, Student Services Riverside Community College District
1974-80	Dean, Admissions and Records Long Beach Community College District
1969-74	Assistant Dean, Student Affairs Long Beach Community College District
1967-69	Chemistry Professor Long Beach Community College District
1963-67	Instructor, Chemistry, Physics, Math K-12 Level

Honors and Memberships

National Merit Scholar	1959-63
National Science Foundation Fellowship Program	1964-66
Phi Delta Kappa	1969-80
Who's Who in American Colleges and Universities	1963
Association of California Community College Admin.	1975-1989
Harvard University Management Institute	1988
California Community Colleges Advisory Committees	1975-1990

Publications

Chemistry for Living, Elot Publishing Company,	1969
Essential of Chemistry, Wm C. Brown Company,	1971
Laboratory Manual for Essentials of Chemistry,	1974
"Registration for Off-Campus Locations", Resources in Education,	1975
"Procedures for Implementation of the Family Rights and Privacy Act", Resources in Education,	1975
"Records Retention Manual", Resources in Education,	1975
"The Development of a Microfilm System", Resources in Education,	1976
"Computer Indexing and Micrographics", CAUSE,	1977
"Records Management Systems", 3M Publications,	1979
"Microcomputer Networks in Education", CAUSE,	1982
"Management Systems in Higher Education", IBM Quarterly,	1984
"Strategies for Change", ACCCA,	1989
"Real Estate Asset Management", ACCCA,	1990
"Asset Management for Community Colleges", CCCT,	1990
"Public/Private Joint Ventures", CASBO	1991
"Community College of the Future," Resources in Education	1993
"The Educational Mall," Resources in Education	1995
"Alternate Funding for Public Agencies," MCEDC Quarterly	1996

2. Identify and describe the role of any external cooperators will be used in the project
   The college district will employ an architect/engineer and a site work contractor and the "FieldTurf" installer as part of the project. All these firms will be under contract to the college district for the project. Contracts shall be in a form acceptable to the Water Resource Board..

3. Provide information about partnerships developed to implement the project
   Cabrillo Community College District and the Soquel Creek Water District are the applicants for this project. The college is the lead agency. The college district and the water district have a long-standing working relationship and have entered into various agreements for service and previous construction projects. If the grant is received, the two agencies will enter into an agreement regarding the implementation of the project and the anticipated public relations and training programs that will be provided.

E. Costs and Benefits

1. Budget summary and breakdown

This grant proposes to cover planning, engineering and construction costs. All soft costs such as salaries, wages, fringe benefits supplies, equipment, travel and consultants will be paid by the college district/water district as part of the cost sharing plan. The estimated budget is as follows:

Demonstration Athletic/Recreation Field Project
Budget

	Category	Local Funds	Grant Funds
1.	Salaries/Wages	$15,570	$0
2.	Fringe Benefits	$5,138	$0
3.	Supplies	$700	$0
4.	Equipment	$48,500	$0
5.	Services/Consultants	$27,000	$0
6.	Travel	$0	$0
7.	Direct Project Costs		
	a. Architects/Planning	$0	$76,950
	b. Engineering	$0	$8,500
	c. Site Infrastructure (Grading, drainage, paving, curb, gutter, etc.)	$899,798	$2,057,722
	d. Installation of Artificial Turf	$0	$2,850,401
	e. Final Site preparation and inspections	$0	$23,000
	TOTAL	**$996,706**	**$5,016,573**

2. Budget Justification

As stated in the budget, no grant funds are requested for labor costs, equipment, supplies or travel. The estimated costs for the architects, engineers, site infrastructure and installation of the artificial turf have been obtained from the providers of that service. In all cases, competitive proposals have been obtained.

3. Benefit Summary and Breakdown

In accordance with the specific objective outlined for this project, the following benefits are projected to occur:

a. There will be a reduction in annual water usage by the college. The estimated amount of this reduction is 170,000 gallons per year.
b. The 170,000 gallons not used to irrigate the fields at the college will recharge the Purisima Aquifer.

c. Training and educational programs regarding water conservation and management will be established by the college and the water district. A minimum of six special training seminars in addition to the regular curricular offerings of the college will be provided.
d. Additional use by community groups will be possible due to the all weather condition and the quality of the fields.
e. The use of the site as a demonstration site for other agencies.
f. Publication and dissemination of information by the college and the water district to describe the project and encourage other agencies to implement a similar conservation strategy.

4. Assessment of Costs and Benefits
   a. Assumptions
      1. The use of artificial turf will significantly reduce the amount of water used by the college for irrigation.
      2. The water saved through the reduction in irrigation will be used to recharge the aquifer.
      3. The maintenance on the artificial turf will be cost effective for the college went compared with the cost of landscape maintenance.
      4. Greater community use of the facilities will occur due to the all weather nature of the surface and the quality of the field.
      5. Other public agencies will have significant interest in the project and the public will encourage their elected officials to implement similar projects to conserve water.

   b. Cost Benefit Analysis (Quantifiable)

	Benefit	**Cost Savings**
1.	Reduction in Water Use	$25,267
2.	Recharge of the Aquifer	$25,267
3.	Reduction of 1 unit of personnel	$40,000
4.	Use of Facilities ($15.00/Hr.)(600Hrs.)	$9,000
	TOTAL	**$99,534**

   c. Cost Benefit Analysis (Non-Quantifiable)
      1. Conservation of Water-This is the greatest benefit of the project. It demonstrates that water conservation can occur and still maintain quality recreational and athletic facilities. The real value in conservation is worth millions of dollars.
      2. Recharge of the Aquifer-The benefit of recharging the aquifer goes far beyond the cost. The real benefit is the ability to avoid the construction of additional water facilities and also to mitigate the problem of salt-water intrusion in the aquifer.

3. Additional Use of the Facility-The college and the water district have created a demonstration, state-of-the-art facility that not only provides the water conservation described above but also provides the community with a quality athletic and recreational complex. It is true evidence of what a water partnership can accomplish.

d. Benefit to CALFED and Water Agencies throughout the State
This is a project that has universal application to all agencies throughout the state. It benefits CALFED in that it reduces the consumer demand and also replenishes the ground water. If other agencies were to implement the demonstration project, there would be less demand and thus fewer facilities would need to be constructed. The benefit to everyone is self-evident.